APPENDIX B – JOBS AND CONSTRUCTION SCHEDULE

The following section provides detailed schedules for the Memorial Bridge and Sarah Mildred Long Bridge project, as well as the Market Street Marine Terminal project. In addition, a discussion of the direct jobs generated by the improvements to the bridges and main wharf is included.

JOB CREATION BY PROJECT

Memorial Bridge and Sarah Mildred Long Rehabilitation - Quarterly Job Estimates

The Council of Economic Advisors provides an estimate of one job created or saved per \$92,136 of government spending from ARRA. Using the CEA method and assuming an overall project expenditure of \$150 million, it is estimated that 1,628 jobs will be created by the construction investment in the bridges rehabilitated by this project.

Direct on-site labor associated with the Memorial Bridge is projected to total 198 employees. Table 1 breaks down these labor requirements by construction element. Most of these employees are directly related to the construction work of the bridge or are involved in the engineering and architectural industries. Additional direct off-site jobs to subcontractors and suppliers of steel, concrete, and electrical and mechanical equipment for the lift bridges are estimated to add another 61 jobs over the course of the project with significant potential for indirect and induced multiplier effects.

Table 1 – Memorial Bridge Rehabilitation Direct Jobs

Memorial Bridge	Direct Jobs
Scott Avenue Bridge	7
Fixed Truss Deck Replacement	7
Kittery Approach Spans	7
Fixed Span Structural Repairs	16
Control and Plaques	16
Float-Out Prep and Float-Out	16
Lift Span Mechanical Work	16
Tower Rehabilitation	16
Fabricate and Assemble Lift Span Offsite	20
Paint Fixed Spans	9
Paint Towers	9
Float-In	16

Electrical Work	6
Road Work	37
Total	198

In terms of direct on-site quarterly job creation, the number of jobs per quarter will vary, depending on what element of the construction is being completed (see project schedule below). For example, 93 employees will be working directly on the bridge rehabilitation in the third quarter of 2011. During this quarter, several construction activities requiring numerous employees will be happening simultaneously. Quarterly job creation estimates are: 23 jobs in Quarters 2 and 3 of 2010; 43 jobs in Q4 of 2010; 36 jobs in Q1 of 2011; 89 jobs in Q2 of 2011; 93 jobs in Q3 of 2011; 58 jobs in Q4 of 2011; 15 jobs in Q1 of 2012; 31 jobs in Q2 of 2012; and 38 jobs in Q3 of 2012.

Similarly, direct on-site labor associated with the Sarah Mildred Long Bridge totals approximately 160 jobs. Most of these jobs are directly related to the construction work of the bridge or are involved in the engineering and architectural industries.

Although creation of these jobs will be delayed until the Memorial Bridge rehabilitation is completed, it is important to note that the jobs created for the Sarah Mildred Long Bridge reconstruction will extend the economic recovery of the region that was initiated by the TIGER Grant funds for the Memorial Bridge.

Market Street Marine Terminal Wharf Rehabilitation and Expansion Project -- Quarterly Job Estimates

The Council of Economic Advisors offers guidance on estimating the number of jobs associated with a government funded transportation project. This guidance provides an estimate of one job created or saved per \$92,136 of government spending from ARRA. Using the CEA method and assuming an overall project expenditure of \$12 million, 130 jobs will be created by the construction investment in the wharf, according to this methodology.

Based on the project schedule and capital budget for the main wharf improvement, the Market Street Marine Terminal project will involve 67 direct on-site employees to complete the effort. Table 2 provides the direct on-site jobs created.

Table 2 – Market Street Marine Terminal Rehabilitation and Expansion Direct Jobs

Market Street Marine Terminal	Direct Jobs
Pile Drivers	13
Operating Engineers	10
Carpenters	8

Laborers	12
Ironworkers	5
Electricians	3
Superintendents	4
Field Engineers	4
Surveyors	3
Project Managers	3
Coffee Wagon	2
TOTAL	67

These direct on-site jobs are only those associated specifically with the construction elements of the wharf improvements. They do not include the jobs that are created when funds are spent on non-labor items such as materials and equipment and other sub-contractors, which are estimated to provide another 61 direct jobs nationally for a total of 128 direct jobs for the port improvement project.

Quarterly direct on-site jobs will vary over the course of project construction but are anticipated to average at least 57 employees from April 2010 through mid-September 2011. Specifically, quarterly job creation estimates are: 43 jobs in Q2 of 2010; 64 jobs in Q3 and Q4 of 2010; 64 jobs in Q1 of 2011; 67 jobs in Q2 of 2011; and 40 jobs in Q3 of 2011.

CONSTRUCTION SCHEDULE

The following are construction schedules for each of the three projects discussed in this application:

- Rehabilitation of historic Memorial Bridge (National Register eligible, national level of significance);
- Rehabilitation of historic Sarah Mildred Long Bridge (National Register eligible, national level of significance); and;
- Rehabilitation and expansion of the Market Street Marine Terminal's main wharf.



TIGER Grant Application Proposed Memorial Bridge Schedule



ID Task Name	Duration	Start	Finish	2010
1 Advertise Memorial Bridge	0 days	Tue 2/9/10	Tue 2/9/10	2/9 Advertise Memorial Bridge
Prepare and Issue Bid	80 days	Tue 2/9/10	Mon 5/31/10	Prepare and Issue Bid
Complete and Issue Permits Prior to Award	80 days	Tue 2/9/10	Mon 5/31/10	Complete and Issue Permits Prior to Award
Contract Award Memorial Bridge	0 days	Tue 6/1/10	Tue 6/1/10	6/1 Contract Award Memorial Bridge
5 Mobilize	30 days	Tue 6/1/10	Mon 7/12/10	Mobilize
6 Submittals	60 days	Tue 6/1/10	Mon 8/23/10	Submittals
7 Close Bridge to all Traffic	0 days	Mon 7/12/10	Mon 7/12/10	7/12 Close Bridge to all Traffic
8 Scott Avenue Span	168 days	Tue 7/13/10	Fri 4/29/11	Scott Avenue Span
9 Fixed Span Structural Repairs	198 days	Tue 6/1/10	Fri 4/29/11	Fixed Span Structural Repairs
10 Kittery Appr Span	87 days	Fri 7/1/11	Mon 10/31/11	Kittery Appr Span
Fixed Truss Deck Replacement	44 days	Mon 5/2/11	Thu 6/30/11	Fixed Truss Deck Replacement
12 Arch Control House & Historic Plaques	44 days	Mon 5/2/11	Thu 6/30/11	Arch Control House & Historic Plaques
Float Out of Existing Lift Span	10 days	Fri 7/1/11	Thu 7/14/11	Float Out of Existing Lift Span
Tower Rehab	44 days	Fri 7/15/11	Wed 9/14/11	Tower Rehab
Lift Span Mechanical Work (long lead time for sheaves)	163 days	Thu 9/15/11	Mon 7/30/12	Lift Span Mechanical Work (long lead time fo
Fabricate & Assemble Lift Span Off-Site	261 days	Fri 10/1/10	Wed 11/30/11	Fabricate & Assemble Lift Span Off-Site
Paint Fixed Span	121 days	Thu 3/31/11	Thu 9/15/11	Paint Fixed Span
Painting Towers	98 days	Fri 9/16/11	Fri 3/30/12	Painting Towers
19 New Lift Span Float In	22 days	Fri 6/29/12	Mon 7/30/12	New Lift Span Float In
20 Electrical Work	175 days	Fri 9/30/11	Tue 7/31/12	Electrical Work
21 Road Work	44 days	Thu 3/31/11	Tue 5/31/11	Road Work
Punch List	30 days	Tue 7/31/12	Mon 9/10/12	Punch List
Project Acceptance	0 days	Mon 9/10/12	Mon 9/10/12	9/10 Project Acceptance
Task ———	Progress		Summary	External Tasks Deadline
Split	Milestone	•	Project Sum	mary ■ External Milestone ■



Tiger Grant Application Proposed Sarah Mildred Long Bridge Schedule



ID	0	Task Name	Duration	Start	Finish	Ist Quarter J F M			Brd Quarter	4th Quarter	1st Quarter J F M	2nd Quarter		4th Quarter	1st Quarte	
1	_	Advertise for Rehabilitation of Sarah Mildred Long Bridge	60 days	Tue 1/1/13	Mon 3/25/13	<u> </u>	Advertise	e for Re	ehabilitation of	of Sarah Mildr	ed Long Bridge	A W 3	U A S	JOINID	J 1	IVI
2		Complete and Issue Permits Prior to Award	60 days	Tue 1/1/13	Mon 3/25/13		Complete	and Is	sue Permits	Prior to Award	I					
3		Notice to Proceed	0 days	Mon 3/25/13	Mon 3/25/13	3/25 🚽	Notice to	o Proce	ed							
4		Mobilize	30 days	Tue 3/26/13	Mon 5/6/13	ı	Mo	obilize								
5		Submittals	90 days	Tue 3/26/13	Mon 7/29/13	İ			Submitta	ils						
6		Paint Structure	300 days	Tue 5/7/13	Mon 9/29/14									Paint Structu	ıre	
7		Remove Existing Bridge Deck	110 days	Tue 5/7/13	Thu 4/3/14)					Remove Exi	sting Bridge D	eck		
8		Place New Bridge Deck	206 days	Mon 5/27/13	Mon 7/28/14								Place N	ew Bridge Decl	(
9		Temp Support Steel for Approach Spans	44 days	Tue 5/7/13	Fri 7/5/13		\		Temp Suppo	rt Steel for Ap	proach Spans					
10		Miscellaneous Steel Repairs	200 days	Mon 7/8/13	Fri 7/11/14								Miscellane	ous Steel Repa	irs	
11		Replace Bridge Rails	44 days	Mon 7/14/14	Thu 9/11/14									Replace Bridge	Rails	
12	=	Expansion Joint and Bearing Shoe Replacement	81 days	Mon 8/26/13	Mon 3/17/14							Expansion Joir	nt and Bearing	Shoe Replacer	nent	
13		Pier Repairs and Reconstruction	175 days	Mon 6/3/13	Fri 5/2/14							Pier Re	pairs and Reco	onstruction		
14		Mechanical Repair	88 days	Mon 6/30/14	Wed 10/29/14									Mechan	ical Repair	
15		Electrical Repair	73 days	Mon 7/21/14	Wed 10/29/14									Electric	al Repair	
16		Punchlist	30 days	Thu 10/30/14	Wed 12/10/14									<u> </u>	Punchlist	
17		Project Acceptance	0 days	Wed 12/10/14	Wed 12/10/14									12/10	Project Acce	ptanc







Rolled Up Task
Rolled Up Milestone

Rolled Up Progress = Split

External Tasks
Project Summary

Group By Summary
Deadline



Tiger Grant Application Proposed New Hampshire Port Authority Pier Construction Schedule



